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☞ Quite a number of those who write to this office on business forget to mention the State in which they reside. This makes considerable trouble as there are so many post-offices in every State, with names exactly alike. We have several letters which contained money for books which cannot be filled because of this lack of definiteness in the address. When the stamp of the post-office is readable, trouble is avoided, but too often such stamps are so indistinct that they cannot be read at all.

☞ The *Popular Science Monthly* for April contains a good article on "Apiculture" from the pen of Mr. Allen Pringle, of Canada.

☞ Whatever may be needed in the apiary during the coming season, should be ordered now, in order to have it on hand when wanted. The supply dealers will be able to give personal attention to all orders sent in now, before the *rush* commences.

☞ We regret to learn that Mr. John Aspinwall, one of the proprietors of the *Bee-Keepers' Magazine*, lost his residence and all its contents at Barrytown, N. Y., by fire on Mar. 12.

☞ We have received a new book entitled, "Money in Potatoes," by "Joseph;" which is the *nom de plume* for Tuisco Greiner, with whom our readers are familiar, being one of the "Greiner Brothers of Naples, N. Y.," who have contributed many articles for the BEE JOURNAL, and have been successful in keeping bees. This book shows how to raise "400 bushels to the acre" as a field crop. It is published by the Franklin News Co., of Philadelphia, Pa.

☞ Mr. Moore, of Monroe, La., has sent us a copy of a letter by the beemen at the World's Exposition, at New Orleans, La., sent to Mrs. Julia Ward Howe, president of the Woman's Department, concerning the bee-hive in the Massachusetts Department from "Lizzie Cotton,' who is "known to fame" as "the woman from Maine." She has a large placard over the hive claiming a very large yield to show its superiority over all others. They reported to Mrs. Howe that there was no *new* feature about the hive, that the woman was from Maine and not Massachusetts, and that she had been repeatedly published as a fraud all over the Country, and asked that the hive be excluded from the Exposition.

Mrs. L. Harrison remarks as follows in the *Prairie Farmer* about this exhibit:

In the exhibit of Woman's Invention, my eye caught sight of a placard bearing these words: "Mrs. Lizzie C. Cotton's Controllable Bee-Hive and New System of Bee-Management, etc."....Bee-keepers from Maine to Oregon are furious, not at being swindled themselves, but at seeing others, who are not posted, cheated out of their money. This wonderful "Controllable Bee-Hive," consists of a box, with a few movable frames in it, and a division-board each side of them. What part did the renowned "Lizzie" invent? All that is good about it, the movable frame, was invented by L. L. Langstroth. Any one who has not bees enough to fill his hive, can slip in a board to make it smaller.

☞ Mr. F. L. Dougherty gives the following items in the *Indiana Farmer*:

To all lovers of nature there is much more in a bee-hive than wax, bees and honey.

Now is the time to make up your mind just what you are going to do. Do not hesitate until the season is on, and then expect any grand results.

The white honey crop with but few exceptions is all gathered within the short period of 4 weeks or less time. For successful work the hives must be full of bees and brood at the commencement of the honey-flow.

It is hardly necessary that we should caution the older bee-keepers as to the necessity of having everything in readiness beforehand. Beginners, however, are much inclined to wait until they feel the need of articles before securing them.

☞ In the spring is the best time to move bees, because the honey does not burden the combs, and there is no danger of the combs being melted down by the heat.

☞ Every apiarist who wishes to develop "the best characteristics in the bees," should carefully record the leading features of both the queens and the colonies. This can best be done in an "Apiary Register," which can be obtained so arranged as to give a complete record of 50, 100 or 200 colonies of bees, with two opposite pages numbered to correspond with the number on each hive. This can be referred to instantly, and should contain a full history of the colony. By its careful and constant use the bees may be improved, their most valuable qualities developed, and the products of the apiary greatly enlarged. Should a queen lack any desirable quality, you will in this way soon discover it, and can supersede her. In this Register let all the important facts be noted, and by its complete history of each colony you may systematize all your work, lay it out in advance, save confusion, and inaugurate the best methods and management.

☞ The *Rural Californian* makes the following report concerning the prospects for honey in California:

Bees are in good condition in southern California—never better at this season of the year. The acacia, willow and blue-gum afford plenty of pollen and honey, and the splendid warm sunshine of the past month has been all that could be desired to bring about a prosperous state of affairs in the apiary. Wild flowers are beginning to bloom—the almond trees are in blossom, and the late sort of peaches are in bloom and covered with bees from sunrise until sundown. It is a singular fact that peaches which ripen in October and November are now in bloom, while the earlier sorts make no show of blossoms as yet.

☞ An Exchange, whose editor was in a funny mood, remarked thus about bees and assessors:

We hear of great losses of bees this winter. The assessors, at least can find few that are strong enough to tax. What business have assessors to tax bees, anyhow? The only bee in the hive, if there were 10,000 in it, that is old enough to tax, is the queen, and nobody knows whether she is alive or not.

Catalogues for 1885.—We have received the following:

A. M. Gander, Adrian, Mich.
W. H. Proctor, Fair Haven, Vt.
J. D. Goodrich, East Hardwick, Vt.
H. A. Goodrich, Massey, Texas.
F. D. Wellcome, Poland, Maine. — Bees, Nursery Stock, etc.

QUERIES

WITH

REPLIES by Prominent Apiarists.

Fastening Combs in Frames.

Query, No. 51.—What is the best and cheapest way to fasten combs in the frames when transferring bees? If they are fastened with wire will it have to be removed?—S. H. J.

JAMES HEDDON says: "First, cut the comb to fit the frame snugly, and run thorns through brad-awl holes previously made in the frame. Second, if they are fastened with wire, it should be removed."

G. M. DOOLITTLE replies as follows: "Melt two parts of beeswax with one part resin, and with a brush dipped in the melted mixture, apply in several places where the comb comes in contact with the frames. A few drops poured from a spoon will answer the same purpose."

PROF. A. J. COOK remarks thus: "First, sticks tied or wired at the ends. Second, it must be removed."

G. W. DEMAREE says: "I prefer a good article of wrapping twine to fasten combs in frames. Do not wrap the twine round and round, for if the bees chance to cut the twine in one place, the whole will give way. Let each 'band' be independent of the other."

W. Z. HUTCHINSON remarks thus: "If pieces of combs must be fastened into frames, wires are as good and cheap as any fastening, and it is advisable that they be removed."

DR. G. L. TINKER answers thus: "The best way is not, perhaps, the cheapest, since to get the combs in the frames nice and straight, there is no better way, I think, than to use thin, narrow strips of wood a little longer than the frames are deep on opposite sides of the comb, and fastened at both ends with fine wire. Remove it at the end of two or three days."

The Amalgamation of Bees.

Query, No. 52.—Why was such a thing as bee-diarrhea unknown when we had nothing but the black or German bees? May not amalgamation have more to do with it than cold, pollen, or the so-called honey-dew? Our winters were as cold then as now, and the bees had all the pollen they wanted.—Gorsuch, Pa.

G. M. DOOLITTLE replies as follows: "Bee-diarrhea was known with the German bee, as Quinby told us of it in his book, before the Italian and other races came to this country."

DADANT & SON remark: "Bee-diarrhea was *not unknown;* but the very men who introduced improvements and foreign bees, discovered the disease and the remedies, or rather the preventives."

PROF. A. J. COOK answers thus: "Diarrhea *was* known. The winters were *not* as cold. Pure black bees die as badly as Italians or hybrids."

W. Z. HUTCHINSON says: "This is a false assumption. Black or German bees having no traces of any other blood, *have* suffered from the diarrhea."

DR. G. L. TINKER replies as follows: "Bee-diarrhea is not a modern affection with bees by any means; but in this country the clearing up of so much of the timber (which has been the natural wind-break) has resulted in the climate being relatively colder now than 50 years since. When bee-keepers shall recognize the fact that cold is the prime cause of our winter losses, we shall get down to successful wintering, and not before."

G. W. DEMAREE remarks thus: "The trouble known as diarrhea in bees is caused by confinement beyond the endurance of the bees. The trouble is wholly incident to long cold weather, and is more mechanical than diseasedness. Of course, many things may conspire to shorten or lengthen the struggle for existence. Bad food, damp, unwholesome quarters, weak constitution, etc., may make the struggle short, and the reverse of these may make the hanging on to life long and tedious. But the end will come if there is no return of the sunshine—no 'flash' of the 'wing' in the balmy air. All these detriments to bee-life have existed for ages, and bees had diarrhea years ago, just as they have it now; but less was said about it then, because less was known about bees."

JAMES HEDDON replies as follows: "The querist is in error in his proposition. Bee-diarrhea is as old as bees existing in northern latitudes. I have known pure German colonies in locations where no others had ever been known, in old-fashioned box hives, to be nearly all swept away with the disease. New countries do not afford nearly as much autumn-pollen as old ones."

H. R. BOARDMAN remarks thus: "The question is not founded on fact. Such a thing as bee-diarrhea was known before the introduction of the Italians, or 'improved bee-keeping,' and bees were affected by it the same as now."

Fall and Spring Weight.

Query, No. 53.—The liquid portion of the stores consumed by bees in winter, is very satisfactorily accounted for in the replies to Query No. 20; but it is shown, on pages 55 and 56, by evidence which cannot be impeached, that bees often consume very large quantities of pollen while in confinement, and yet remain perfectly healthy. It is hard to believe that the indigestible portions of all this pollen, together with the waste tissue caused by extensive breeding, can be retained for months in the intestines. What becomes of it?—A Subscriber.

PROF. A. J. COOK says: "Those who have bees that breed extensively, in winter, in the cellar, where the bees cannot fly, are respectfully urged to send me some of the bees for examination. Do bees rear much brood? Is it not possible that in preparing food for larvæ they extrude from the mouth some of the matter? The little pellets in the hives are from the mouth, as I have shown. Can it be they spit out the *debris?*"

W. Z. HUTCHINSON remarks thus: "I fail to see with Subscriber, that there is positive evidence on pages 55 and 56, that bees often consume very large quantities of pollen when in confinement, and yet remain perfectly healthy. When the pollen and waste tissue accumulates to a sufficient degree, diarrhea is the result."

DR. G. L. TINKER says: "This has been one of the disputed questions having a practical bearing upon the wintering problem. We are now able to answer it (thanks to the careful researches of Mr. S. Corneil) intelligently. Bees in winter confinement under favorable conditions void their feces in the hive! The indigestible portions of the pollen consumed, and the tissue waste, are regularly evacuated from them as so much excrement. The very interesting experiments of Prof. Cook, leading him to hold opposite views, are inconclusive. I wish here to score another fact that pollen is a perfectly healthy winter diet for bees. When in the near future it shall appear that good, sound pollen is essential to the best results in wintering, as there is now every reason to believe, we shall get out of an egregious error that has in its short day, caused more care and done more mischief than any we are likely to come in contact with hereafter."

G. M. DOOLITTLE remarks thus: "I do not allow that it is proven on pages 55 and 56 that bees without brood eat pollen, but on the other hand, the proof is positive that many colonies starved to death with plenty of pollen in the hive. The pollen found in the intestines remained there from the fall previous, as Prof. Cook has lately found plenty of pollen in the intestines of bees wintered wholly on sugar syrup, without pollen. Where no diarrhea or brood is present, all the pollen in the intestines is easily carried from one flight to another, hence it has no direct effect regarding the difference between fall and spring weight."

JAMES HEDDON says: "My reply to the same question (Query No. 20), is according to the best light I have. I deny that it is shown on pages 55 and 56, that bees consume large quantities of pollen in confinement, and yet remain perfectly healthy. I believe that bees can breed in confinement and remain healthy, as that is proven on pages 55 and 56; but the pollen is not consumed by the workers; it is handled by them and consumed by the brood. There is something here that none of us clearly understands, I think."

☞ The Texas State Bee-keepers' Association will be held on Thursday and Friday, May 7 and 8, 1885, at the apiary of Judge W. H. Andrews, at McKinney, Tex. All interested in the advancement of apiculture, are earnestly requested to be present and make this a memorable meeting of the Association.

W. R. HOWARD, Sec.

Explanatory.—The figures BEFORE the names indicate the number of years that the person has kept bees. Those AFTER, show the number of colonies the writer had in the previous spring and fall, or fall and spring, as the time of the year may require.

This mark ⊙ indicates that the apiarist is located near the centre of the State named: ♂ north of the centre; ♀ south; ♁ east; ☿ west; and this ♂ northeast; ☾ northwest; ☌ southeast; and ♀ southwest of the centre of the State mentioned.

For the American Bee Journal.

Methods of Curing Foul Brood.

16—G. M. DOOLITTLE, (40—80).

I have been waiting for some time, and anxiously watching the columns of the BEE JOURNAL, hoping that some of the bee-keepers who had more scientific knowledge than myself, would have something to say regarding what we find in the articles on pages 644 and 740 of the BEE JOURNAL for 1884, relative to foul brood, or what Mr. Cheshire terms "*Bacillus Alvei.*" While waiting, I have also been wondering if Mr. C. has not in some way made a mistake, or if they did not have a disease of bees in England, known as foul brood, different from our American foul brood. These words of Mr. Cheshire, found on page 646, "the popular idea that honey is the means by which it is carried from hive to hive, and that mainly through robbing, is as far in error that only occasionally and casually can honey convey it from colony to colony," are so directly opposed to our much honored Quinby's words, "I drew all of the bees from such diseased colonies, strained the honey, and fed it to several young healthy swarms soon after being hived. When examined a few weeks after, *every one, without exception, had caught the contagion,*" that it is not strange that I began to wonder if there was not a mistake somewhere. Again, Mr. D. A. Jones says: "A single drop of honey taken from a diseased colony, if fed to the larvæ of a healthy colony, is sufficient to start the work, which, if unarrested, is inevitable destruction."

While I always prize scientific research highly, yet to be valuable to me, such research must not run squarely against facts known to exist from practical experience. As hundreds of the practical apiarists of the United States *do know* that the foul brood of this country is spreading, and is contagious mainly through the honey, the words of Mr. C. sound very strangely to me, when applying them to what I know of foul brood.

My first experience with this disease was in 1872-73. Being short of combs, and the bees not building them (by my method of securing a large yield of comb honey) as fast as I desired, I procured more comb containing a little honey, of a man several miles distant during the winter of 1871, and fitted it into frames. These frames were given to a late swarm the following summer, to enable it to be in condition for winter. In the fall I noticed a few cells of unhatched brood, but I thought nothing of it as I had at this time but little experience in bee-keeping. During the next spring, combs from this hive were exchanged with other hives, and before I could hardly realize the situation, I found that this hive was almost rotten with foul brood, and 11 others thoroughly inoculated with the disease, caused by the exchange of combs; first from the colony above-named, and subsequently from those hives into which the first combs were inserted. Becoming alarmed, I rashly resolved that I would never under any circumstances, again exchange combs, nor ever take another comb from another apiary, not even as a gift—the folly of which resolve I saw the very next spring, when some of my colonies were starving while others had plenty of honey to spare.

As the 11 diseased colonies constituted one-third of my apiary at that time, I began to look about to see what could be done to save them. I turned to Quinby's Bee-Keeping, and there found that if the disease had not advanced too far, the colonies would swarm, and if such swarms were hived in empty hives, no disease would follow them, as the honey taken with the bees would all be used up in comb-building before any larvæ were hatched in the new combs. Accordingly, I hived all the new swarms from these colonies, in empty hives, and 21 days later drove out all the bees from the old hive and hived them the same as were the swarms. The honey was strained and boiled, the combs rendered into wax, and the hives burned. The colony which took the disease from the old comb that I bought, was driven out as they were too weak to swarm. In this way all of the eleven were cured, but in the fall I found two more, that investigation showed that they had had a frame of brood given them from one of the eleven hives, that at first gave no signs of the disease. These two were allowed to go over until 1873, when they were treated as were the others and effectually cured, since which time I have had no foul brood in my apiary.

If I were the only one who had cured foul brood by the above plan, there might be a chance for a mistake on my part, but when hundreds in the United States and Canada have done the same thing, it seems impossible that they should not know whereof they affirm. Therefore, what am I to think when Mr. Cheshire says, on page 741, "There is not one single old idea about this disease which is not incorrect, except that it is contagious. Time, I am convinced, will fully prove that the old bees almost invariably are the channels of infection?" If this were so, certainly the above-described process of cure, used with success by so many of our best apiarists during the past 20 years, would not have proved effectual in their hands. That it has been effectual but proves that Mr. Cheshire's scientific research is faulty, or else that he is dealing with something else besides American foul brood.

Again, he tells us that the eggs of the queen contain *bacilli*, he having counted "no less than nine" in one egg. Does not Mr. C. readily see that if this is so, that foul brood must go wherever this queen goes while she lives, and that his phenol cure must be administered every few weeks so long as such queen lives? If our American foul brood could be carried in the ovaries of the queen, it would place an effectual barrier against our queen-traffic which is assuming great proportions in the United States and Canada; yea, and which is soon destined to extend throughout the whole civilized world. Shall we stop all of this for fear that foul brood will come to us with the queens which we buy? No; let us rather hold to the fact expressed by Mr. Quinby when he said 20 years ago in his "Bee-Keeping Explained:" "I have never known such a result in a single instance." If it were possible for a queen to carry foul brood, then the plan which I used in my apiary, would not have cured the disease as effectually as it did, and from my experience I am positive that foul brood cannot be developed from any queen or drone in any way, shape or manner.

While on the subject of foul brood, I wish to notice one point in the method of cure as practiced by Mr. D. A. Jones. He tells us that after causing the bees to fill themselves with honey, he shakes them into a wire-cloth box where they should be left from 3 to 6 days to so nearly starve that some begin to fall to the bottom of the box, when they are to be hived on foundation or empty combs. Now, from my experience I can see no need of this starving process, for, if swarms from a foul-broody colony placed in an empty hive, do not have any of the disease, driven colonies will not. To some of the latest drummed colonies spoken of in the above, I wished to give combs and brood so as to get them in good condition for winter, so I simply left them in the empty hives until larvæ began to hatch, when combs and frames of brood were given, and no signs of the disease appeared afterward. By this plan I secured a half-dozen frames partly filled with nice worker-comb, which were afterward completed by nuclei, which I would have lost had I used the plan as Mr. Jones uses it. If these combs are not wanted for use in the way I utilized them, they would never come amiss for starters for sections, or even for filling the sections full of such combs. In this way those six days of fasting are made to be of value to the unlucky apiarist.

Borodino, ⊙ N. Y.

☞ The Progressive Bee-Keepers' Association of Western Illinois will meet in Bushnell, Ill., on Thursday, May 7, 1885. Let every bee-keeper who can, be present and enjoy the meeting. J. G. NORTON, Sec.

For the American Bee Journal.

Clipping the Queen's Wing, etc.

DR. C. C. MILLER, (200—293).

Bee-keepers differ as to the advisability of clipping queens' wings. Those who advise against it have conveniences for hiving swarms, and some one on hand constantly to hive them. If my queens' wings were unclipped, I should make it my study to have the best arrangements possible for hiving swarms without any climbing or sawing off limbs of trees. Taking all things into consideration, I much prefer to have my queens' wings clipped, and give herewith my plan of proceeding with reference to swarms:

A colony whose queen has a clipped wing will make preparations and swarm just as if the queen's wings were whole. Of course the queen cannot go with them, and sometimes the swarm will circle around in the air for a few minutes, and return to the hive; at other times they will cluster on a tree or other object and remain from a few minutes to half an hour before returning. As a general rule the swarm goes back to its own hive, but occasionally the whole or part of the swarm goes to some other hive. I do not know that I have ever lost anything from this cause, as the same bees will store just as much honey in another hive as if they had remained in their own.

Some one must be on hand to watch for swarms. A bright and faithful boy or girl will do very well if the owner is occupied. I have on hand a number of queen-cages of the cheapest kind. When a swarm issues the watcher looks for the queen. She may be seen on the alighting-board, but I have been more successful in watching for her on the ground in front of the alighting-board, and I generally find her not many inches distant; sometimes, however, she may crawl off several feet. Generally the queen is seen and caught while the swarm is issuing. She may be among the first that come out, but oftener she is among the last. If not found before the bees of the swarm have all returned to the hive, it is hardly worth while to look longer for her, although I have sometimes found the queen an hour or more later, some distance (once more than a rod) from the hive, with a small cluster of attendant bees. If the queen has not been found, the probability is that she has gone back into the hive to come out again a day or more later.

After the queen is caught and caged, different plans may be adopted. One way is to remove the hive to a new location, and put an empty hive in its place, for the returning swarm to enter. Give them a frame of brood and their queen, and the work is done. The old colony is so reduced by removal that there is little danger of a second swarm issuing. It any fears of this should be entertained, a part of the bees may be shaken from the combs in front of the new hive (taking care not to shake the comb on which may be the best queen-cell), or all the queen-cells but one may be destroyed.

Another plan is to shake most of the bees from the combs, leaving only enough to care for the brood, and put these combs with the few bees, into a new hive; give them the queen, put in or leave in the old hive two or three combs on which are no queen-cells (I prefer those which have only sealed brood and eggs—no unsealed larvæ), replace the supers, and put the hive which now contains the queen on top of the supers. These bees with the queen will promptly destroy all queen-cells, and in about ten days this hive may be put down where the colony was originally, and the hive with two or three frames may be removed and used as a nucleus hive, enough bees remaining with it wherever it is put, to form a good nucleus and rear a fine queen, providing the eggs that were given it be of good stock.

Marengo, ♂ Ills.

For the American Bee Journal.

What Causes Bee-Diarrhea?

W. Z. HUTCHINSON, (68—94).

Bee-diarrhea is the result of an overloaded condition of the intestines. I think that few, if any, will dispute this. We may have different theories in regard to the causes which bring about this overloaded condition, but can we not all meet upon the common ground covered by my first sentence?

Analysis and microscopical examinations have both shown that the excreta of bees is mostly undigested particles of pollen, and the logical conclusion is that, if the bees ate no pollen their intestines would not become overloaded. The correctness of this conclusion has been proved time and again. Diarrhea has been produced by giving the bees pollen, and prevented by with-holding it, when all other conditions were alike. The first colony with no pollen in its stores has yet to perish from diarrhea.

The stupidity exhibited by some in asserting that the pollen theory is a chimera, because bees in warm climates never suffer from diarrhea, is truly amazing. Bees in warm climates are free from diarrhea simply because they can enjoy frequent flights.

Because it is only in the higher latitudes that diarrhea makes such sad havoc among the bees, it has been asserted that it is caused by cold. Very well, we will put the bees in a warm cellar, are they now free from diarrhea? Unfortunately, they are not, and thus perishes the "cold theory."

Now another class steps forward, and, with confident air, they all exclaim in chorus: "Now, we have found it, its confinement!" Not too fast. Some of the colonies in a cellar are dead from diarrhea; others not yet dead will dwindle in the spring and die; others have only a "touch" of diarrhea, and will probably "pull through;" while still others are entirely free from diarrhea. Where is the confinement theory now, as all were confined alike?

Please do not understand me as intimating that cold and confinement have no bearing upon the subject. The effect of cold is to induce greater consumption of food, consequently the sooner do the intestines become overloaded. Confinement simply prevents the bees from discharging the contents of their intestines in the open air. Cold is not necessary to the production of bee-diarrhea, while confinement is; but it should not be forgotten that while there cannot be diarrhea without confinement, there can be confinement without diarrhea.

Then there are the questions of ventilation and humidity; but as bees have both lived and died during the same winter in well ventilated cellars and hives, and buried in the earth, and in a dry atmosphere as well as a wet one, I can but look upon these as having but little bearing upon the subject.

Will those who continue to use the expression "dry feces," and those who believe that bees ever discharged their feces in a dry state, please turn to page 626 of the BEE JOURNAL for 1882, and read the account of Prof. Cook's experiments upon this subject?

The latest theory is "hibernation." In the first place, Mr. Clarke started out with a false assumption. Bees in forest homes of their own choosing, are no more free from diarrhea than are bees in the modern chaff-hive, or in the cellar. Were bees living in hollow trees, comparatively free from diarrhea, the forests would long ere this have fairly teemed with bees. Mr. Clarke should, however, have the credit of having started a new line of reasoning; and, although it may lead to nothing, it certainly ought nôt to be cast aside with ridicule. Bees winter well when they hibernate; and, although they sometimes winter well when they do not hibernate, I think that all will agree that the chances are much more in their favor when they do, so much so that it is safe to say, when bees hibernate they winter well.

Why do bees hibernate? As the temperature falls, they cluster closely and more closely to retain the animal heat. Now, in some instances, why do they remain thus quietly and closely clustered for weeks and weeks with no indications of diarrhea, and in others the cluster sooner or later breaks up with diarrhea? In other words, having commenced to hibernate, why do some colonies continue to hibernate and others do not? I suppose the readers are expecting me to give as a reason the consumption of pollen. Well, in the light of all that is now known upon the subject, is there a more reasonable reason that can be given? When bees continue to hibernate for a long time, it appears to me that one of two things must be true, either they hibernate because they consume no pollen, or else they consume no pollen because they hibernate. Let either hypothesis prove true, and it will be seen that there can be no diarrhea if there is no pollen. Let some one produce a case

of bee-diarrhea without the use of pollen.

Some have argued that, as bees follow their instinct in storing pollen, no deleterious effects can follow its consumption. Nature, they say, makes no mistakes. It is evident that there is a mistake somewhere. Perhaps it is in attempting to keep bees out of their native clime, without recognizing and complying with the changed conditions.

Rogersville, Mich.

For the American Bee Journal.

Odors and Sweets.

C. H. COGSWELL.

Mr. Kemp, on page 138, in referring to my article on page 567 of the BEE JOURNAL for 1884, seems to confound odors and sweets, and hardly does justice to what I said. He says: "Did Mr. C. ever visit a sugar-camp where the sap of the sugar-tree was being boiled, and not smell it? Did he never smell the aroma from the coffee-pot on the stove, or the cabbage in the dinner-pot? Did he never inhale the fragrance of a full-blown rose? . . . That flowers and evaporating sweets do emit an odor, everybody knows."

Correct. We agree on that; but I suggest as a fact that these "odors" and fragrant smells have nothing to do with the presence of grape-sugar in honey, or cane-sugar in the "sap of the sugar-tree." The only point that I called in question in my first article, was the vaporization or evaporation of these sugars, and their return in the form of so-called honey-dew. The exhalation of "odors"—from the sickening horror of the "Jimson," *Datura Stramonium*, to the fragrance of the tube-rose and *Lilium Candidum*, have been noted by my "olfactories."

The odors of flowers seem to depend on the presence of volatile oils, and may exist and be exhaled with or without the presence of nectar or grape-sugar. For this I refer to Johnston's Chemistry of Common Life, Vol. II, page 180.

Volatile oils and resins are readily and rapidly exhaled, having, in the words of the Dictionary, "power to pass off by spontaneous evaporation, or of easily assuming the æriform state." The question is, "Does sugar thus evaporate and assume the 'æriform state.'" Upon proof of this proposition depends Mr. K's theory of honey-dew. The Dictionary defines sugar as "a sweet substance obtained from many vegetable juices, by evaporating the water they contain."

The chemistry above quoted, Vol. I, page 200, says: "The solid sugar of honey is identical with the sugar of the grape. The liquid sugar differs from the solid chiefly in refusing to crystallize, and in containing an admixture of coloring and odoriferous substances produced by the flowers. To these foreign substances honey owes the varied colors, flavors and fragrances, for which it is often highly prized." I urge then that it is these "foreign substances," these volatile odors and fragrances that are "emitted" from many flowers, and not the honey. It is these odorous substances which pass off from the boiling sap with the surplus water in the form of steam, which "evaporate," leaving the sugar as a residuum in the kettle. I should be glad to accept Mr. Kemp's theory of honey-dew in place of the "louse" theory, if it seemed as true.

Mr. K. says that there are but three sources from which saccharine juices can be obtained; viz: "earth, air and water." He then adds that "not a particle" can be digested or analyzed from garden soil or rain-water, and perforce, if his conclusions are true, all these tons of honey must pass from air to flowers, and back from flowers to air. I wish to ask if it has been shown that sugar or nectar can be "digested or analyzed" from atmospheric air more readily than from earth or water.

Virden, Ills.

For the American Bee Journal.

Rights and Patents.

JAMES HEDDON.

As I have been over the same grounds traversed by Mr. Beckwith, in the last number of *Gleanings*, I wish to give what I have discovered that he seems to have overlooked. He speaks about the fact that an inventor starts where some one leaves off; and that inventions are merely mental evolutionary growths. I grant it. The patent laws will grant to each inventor just that part of that growth which belongs to him—and no more. Suppose Mr. B. discovers a principle, but cannot discover enough of it to get from it any practical value; Mr. A. does likewise. C. looks at both, and discovers a third, which makes the first two of value to humanity. He gets the right. He is the real benefactor of mankind.

Mr. Beckwith says that "a large part of the patent claims are, when thoroughly sifted, only what some one else used long ago, but never thought of getting patented." Good! When every one is anxious to break down and invalidate a patent, it is because the use of the principles are considered valuable, and the self-interest of the public desires to avoid the royalty. Now, if it is so valuable, why is it so "old" and dead? Why did not the "old" original inventor get a patent? At least why did not the new light even radiate from its original point, out over humanity? But, perhaps, this may be answered by saying, "the discovery is of no value." That is about the only reasonable answer. Well, then, what care we how many patents A, B or C may claim and hold on something which we do not want? Time and truth will invalidate it, putting it in the old grave where thousands of its predecessors have gone.

Certainly, "demand stimulates to invention," and our brightest inventors cannot help wearing out their lives with an automatic action that brings on all sorts of nervous diseases. Because this over-stimulated, self-operating, destructive labor is of such a nature that it would work without pay, should we take advantage of that? *Never.*

I once heard a man say, "I am opposed to pensioning soldiers; most of them went to war, not as patriots, but as adventurers, little dreaming of the hardship they were to meet, or they never would have gone." I replied: "No matter, these men did bear the hardships of war, that I (then a boy) could in manhood enjoy the benefits of their hardships and labor. Never mind the intent; the pain, suffering and death was borne, and I owe a debt, not only of gratitude, that can never be paid, but of dollars and cents which shall be liberally paid so far as my influence goes."

Again, Mr. B. says, that if Mr. A. did not discover and monopolize the discovery, it would be left in the great secret vault of Nature, where it would soon be discovered by another. I grant that. I used to think that this was one valid argument against the patent system (not patentees); but let us look at it further: The objection raised is, that when Father Langstroth took from this great "vault" his movable frame, he robbed it of one great truth, and thus left *us* one less chance to discover; and had he not done so, we would, ere this, have found it. I grant and believe the last part of that sentence, but not the first. Scientific facts are infinite. No matter what A, B or C takes from the vault, there is an infinity left, and I found that a thought of this depletion arose from a stronger desire to take what some one else had groped about after in the darkness, and finally laid outside the vault door, than to go in likewise and meritoriously bring something else to light. When Father L. held his patent ("monopoly"), there was kicking and screaming. One hive vender, who was infringing his patent, after doing so with a set determination, going into lawsuits with him, trying to prove priority with this same old story, "used by Mr. M. years ago," and failing, proposed a relief fund, which he headed with $100. Father L. rose in his dignity and genius, and said: "Sir, I will not accept one cent from you. I only ask what *belongs* to me." When I read this reply, I felt an electric shock pass over my whole being.

All this is about the patent system, and not patentees. An unanswerable reason why Brown now has a moral as well as legal right to patent his inventions is, because living under the patent system, he always has paid, and no doubt always will be forced to pay tribute to other inventors.

My main objections to the patent system has been the money thrown away by would-be inventors, and the robbery by selling worthless patents. I have been considerably connected with patents and patent lawyers, and I have found to my satisfaction, that

the greater part of this priority reversion to old discoveries of the same thing, for the purpose of breaking down valid patents, is pure and simple perjury. I have known this perjury to exist outside of and unknown to the defendant, caused by the vanity of the witness; not usually made of whole cloth, but out of what would make no case, in the mouth of a less vain and honest witness. However, I never knew it to win. Have none of the readers ever discovered that much of the opposition to patents is the product of pure and unadulterated selfishness? Few patents "monopolize." I do not now think of a single one in our line that does. A patent may make the patentee rich by the monopoly of the manufacture of all the articles of the kind, and which also enables him to make them at much less cost.

Dowagiac, ♀ Mich.

For the American Bee Journal.

Old and Young Bees, etc.

L. L. TRIEM.

On page 184, Mr. C. W. Dayton says: "But how old bees may be distinguished from young ones when in winter quarters, is not as apparent." It would, indeed, be very difficult to distinguish old from young bees in case the bees were wintering well—in that perfectly quiet state as Mr. Heddon and many others have described. But in this case it is different; as soon as the burlap cover is removed from the frames, bees rush up in countless numbers, and surely we cannot be mistaken. I always distinguish old bees from young ones by their light color and downy or fuzzy appearance.

Both of those colonies referred to in my article on page 123, were Italians. I knew that they were breeding even before I removed them or uncovered them, by the many young, imperfect bees at the entrance of each hive; however, I saved both of the queens, and one of the colonies is now in average condition.

Feeding bees is a subject of much importance at this season. I have tried out-door feeding, and I cannot succeed nearly so well with that as feeding inside of the hive. For two years I have fed inside of the hive, both early in the spring for stores, and later for the purpose of stimulating the bees. My feeders are simple. I use the standard Langstroth frame and two strips of wood, like wooden separators, are nailed to both sides of the top of a frame ⅜ of an inch lower than the bottom of the top-bar. A bottom-bar is inserted, all is nailed with ¾-inch wire-nails, and a little hot wax is run around the joints. Bore a ⅜-inch hole in the top-bar for a funnel to pour in the feed. The space below the feed-tank will be used for brood-rearing, and only the 3 or 4 inch space is lost.

I use enameled cloth or burlap covers under a tight honey-board, and cut a slit in the cover, slip the honey-board forward, insert the funnel, and no bars can bother. In this way I am now feeding 25 colonies which were light in stores, and I shall commence about May 1 to feed all my bees to stimulate brood-rearing. The advantages of this feeder are numerous. There is only one other better way of feeding, of which I know, and that is as Mr. G. M. Doolittle, Mr. O. O. Poppleton and others feed bees, viz: By using combs of honey or syrup; and with this I am not altogether satisfied.

La Porte City⊙, Iowa.

For the American Bee Journal.

Increasing the Number of Colonies.

JNO. A. BUCHANAN.

As I have had some experience in increasing the number of colonies, and have accomplished just what some others may desire to do, I wish to state the course pursued to accomplish the desired end. During the fall of 1880, the bees in this section were short of stores, and some of the wiseacres at that time were advocating the use of a food safe for winter stores, composed of equal parts of granulated-sugar syrup and grape-sugar syrup. This was a cheap, innocent looking food for bees, but before I got rid of it, I was thoroughly disgusted with it.

The winter following the feeding of this "pizen," was hard enough on bees having the most wholesome food obtainable, but this above-mentioned food, with such a winter, was too much for the bees, and by the following April, out of 80 choice colonies, I had just 15 that were only strong enough to cover from 1 to 4 Langstroth frames. These weak colonies were placed on the south side of a high, tight board-fence, and were protected, stimulated, and cared for in the most approved manner. As soon as brood began to hatch rapidly, all were equalized. When the brood department became crowded, and the weather became warm, an upper story containing 10 more Langstroth frames was given each colony, which was at once used for the extension of the brood. Soon these combs were filled with brood, and both stories packed with bees. One colony was confined to a single story, and induced to prepare for swarming by daily feeding, and was permitted to cast a swarm. When the young bees were within two days of maturing, a strong nucleus was formed for each queen-cell that I found in the hive, which numbered 26, and just about the time these queens were ready to emerge from the cells, each nucleus was supplied with a queen-cell. In ten days 25 of these young queens were laying, one having been lost on her mating flight.

I now took frame after frame of brood from the upper stories of the old colonies, thus building the nuclei into full colonies as rapidly as possible, and at the same time giving the old colonies empty combs to fill with brood for future draughts in forming other nuclei, which were in turn built into full colonies as their young queens began to lay. In this way those 15 weak colonies were increased to 70 strong ones, besides producing several hundred pounds of surplus honey.

One must so manage all through as to have young queens ready to hatch within a day or two of the formation of the nuclei. In my case I had plenty of combs, but comb foundation might be used instead; for without either, with but an average locality and season, I think it questionable if such increase can be made. If one's time is very profitably employed for the most part, it may pay to buy queens; otherwise not. Unless the bee-keeper has combs which he wishes to save by getting bees on them, it will not pay to more than double the number of colonies each year until the area of his apicultural field is fully stocked.

Holiday's Cove, ♂ W. Va.

For the American Bee Journal.

Honey-Dew—Wintering Bees.

E. B. SOUTHWICK, M. D.

Much has been written in the last volume of the BEE JOURNAL about honey-dew, but as none, I believe, have expressed my ideas of the matter, I will now give them.

Dew is moisture condensed from the atmosphere by cold; honey-dew is moisture and honey condensed by cold. There are insects that excrete a substance that bees will eat, and there are some leaves that when wounded or cracked, a substance will exude from them that bees will eat; but neither of these can be dew, for they are not condensed from moisture in the atmosphere. That there is an article that will fully "fill the bill," I have no doubt; but where does it come from? is the question. We notice in large fields of flowers, when there are bees in the vicinity, that the bees are busy until noon, and sometimes later, but we seldom see them there in the after-part of the day. Why? Have they gathered all there is, and do flowers secrete honey only in the night? I think that no one will claim that such is the case. Then, what has become of it? The moisture on the leaves has evaporated, and is it not safe to believe that the honey has done the same? If so, what becomes of it?

The old pagans claimed that their god lived on honey, but I do not believe that our honey goes that way; we must look for it in some other way; and as the moisture that is evaporated at the same time, is returned to us at night in the form of dew, is it unreasonable to think that the evaporated honey in the cool of the night, does condense and return to us in the form of real honey-dew? I think not. This honey is as good as the best, but the exudation of bugs, the sap of trees or leaves, the juice of rotten fruit, and the like, is better out of the hives than in them, and is entirely unworthy of the name of honey-dew.

In reading Mr. Pringle's article on page 73, I was not a little pleased to find that his experience was so nearly like mine during the first three years. I commenced on the improved plan, took a bee-paper, and read many books on the subject, but my bees for three years were dead in the spring. During the last of the three winters, when I thought of my bees, it was with satisfaction that I contemplated their comfortable situation for I had packed them according to the most approved plan; but, lo! when spring came they were all dead except one colony, and that was worthless. To say I was disgusted, would not begin to express my feelings. I then went to work with a perfect contempt for everybody's methods, and made hives such as I thought the bees needed, and I can say that I have not lost a good colony in them, that I was not satisfied had starved.

Sherman, Mich.

For the American Bee Journal.

The Pollen Theory.

16—DR. A. B. MASON.

I would like to add my "say" to that of Mr. Corneil's, on page 55, that "The pollen theory must go," but my "must go" is a little different from his. I say that I believe it "must go" into more general use if the heavy losses from which bee-keepers are now suffering in wintering bees, are to be avoided. There are but few who practice wintering bees without pollen, that say anything about it in writing for the bee-periodicals.

This makes the sixth winter that I have wintered my bees on this plan, and with uninterrupted success. So far as I know, I was the first to try this plan, but I claim no honor for it, as it was not original with me. In the BEE JOURNAL for June, 1879 (page 277), I saw what seemed so reasonable a statement of the case, by that thoroughly scientific man, Mr. Frank R. Cheshire, that I had read but a few lines of the article referred to, before I saw the "pollen theory;" not "in all its glory," but the statement in the first 13 lines were just what I had learned 25 years before, in regard to nitrogenous or tissue-forming, and non-nitrogenous or heat-producing foods. I had heard these terms often repeated during the winter of 1857-58 by the the professors in the Medical Department of the University of Michigan, and Mr. Cheshire's article seemed to tell just how to prepare bees so they could be wintered without loss. I put the theory (shall I call it "theory?") in practice with part of my colonies during the next winter, and it was a perfect success, and it has been during every winter since. Each winter I try some colonies with pollen so placed that they are very sure to eat at least some of it, and sometimes they have the diarrhea, and sometimes they do not. Some of my colonies that had pollen during the past winter, showed signs of diarrhea, but those without pollen are in splendid condition. On Feb. 14, I cleaned the dead bees from all the hives and swept up all from the floor (I always winter them in the cellar), and they would not measure to exceed ten quarts to 100 colonies. On March 9, I examined them again, and there was a still smaller proportion of dead bees.

If Mr. Heddon and Prof. Cook (and where can we find better authority on this subject?) do say "that bees can winter well with plenty of pollen in the hive, if all other conditions are right," it does not follow "that we have a direct admission from the author of the pollen theory that it is not correct." The assertion by Mr. Pond, that "this, of course, ends the controversy, and bids farewell to the subject," does not end it by any means; and it wont "rest" even if Mr. Heddon does say, "let it rest with future experiments."

"Our wintering troubles" are the great "drawbacks" to bee-keeping, and feeling very much interested in the matter, I read with great interest all I see on the subject in the bee-papers, and when reading some of the articles, I have repeated the old saying, "none so blind as those that won't see." All kinds of causes are given as the cause of loss, such as cold, confinement, cold and confinement, moisture, too much ventilation, not enough ventilation, brood-rearing, not hibernating, bad honey, starvation, etc., but the most that perish have the "diarrhea."

For several days I have been spending a good share of the time in looking over the back volumes of the BEE JOURNAL to see when and by whom the pollen theory was first advanced, and who have given in "their testimony" on its side, and I am surprised at the amount of such testimony. Should all such as are practicing the theory, and those who believe in it, give in their "vote," I am not sure but Mr. Pond, and in fact all of those who are for no pollen in winter, would be completely surprised at the throng of intelligent bee-keepers who have accepted the pollen theory as the preventive of such heavy losses in winter as are now so prevalent.

It seems to me that the opponents of the "theory" do not understand it. Nearly, if not quite all the evidence which they bring forward, is simply to prove that colonies do winter well with plenty of pollen in the hive, having but little or even no diarrhea. Why, we all know that! But are they sure that when colonies are put away for winter with a good supply of it, that they will come out all right in the spring? "Aye! there's the rub!"

I wintered bees in Iowa during several severely cold winters, without loss, and I suppose that they had a supply of pollen, but I never looked to see. I have wondered how many "pollen men" know the amount and location of pollen in their hives, or whether there is any at all. I had several colonies last fall that had but a few cells of pollen, so few that I did not take the trouble to remove them in preparing them for winter, and some colonies were loaded down with it. Mr. Corneil brings forward the kind of evidence we can all give, that bees do frequently winter well without any pollen having been removed from the hives; but who can tell how much pollen was there, or how much was consumed by the bees? Bring forward the evidence that the "theory" does not hold good in practice, by proving that bees become decimated when they have no pollen—nothing but pure honey or sugar syrup. Let us have the evidence from such as have honestly, with a desire to get at the truth, tried to winter bees with good honey or sugar syrup and no pollen, and have failed; and if they have failed let them give all the minutia of preparation, where wintered, and the temperature and condition of the repository, etc.; and then let us hear from those who have tried and succeeded. It does not seem possible that so much has been said by such practical bee-keepers as Prof. Cook, Mr. Heddon and others, on this subject, without many trying the plan.

"A short discussion ensued on the 'pollen theory,' which received no endorsement; the speakers being Rev. L. Johnson, Dr. Jesse Oren, C. P. Dadant, C. F. Muth and others," is the report in the BEE JOURNAL of what was said of the "theory" at the late International Congress at New Orleans. Is that any evidence that the "theory" is not correct? Are not such men as the Rev. L. L. Langstroth, Prof. A. J. Cook, and Messrs. Frank R. Cheshire, James Heddon, G. M. Doolittle and R. L. Taylor theoretically and practically the peers of any in our specialty? and they are on the side of the pollen theory; and I might name others equally well known.

We know that bees must have nitrogenous food in order to rear brood, and that strong colonies do sometimes rear a large amount of it in winter without having the diarrhea; but is not that easily accounted for? and is it not additional evidence, and that of the strongest kind, too, that the theory is correct? Is it not pretty universally admitted that bees use pollen or its equivalent, honey or its equivalent, and water, with which to make the chyme on which the larvæ are fed? Mr. G. M. Doolittle says about four parts pollen, two parts honey, and one part water. So we see that the bees digest most of the pollen that they use in rearing brood, and it does not go to overload them with diarrhetic material.

Since writing the above, I have received the BEE JOURNAL for March 4, and on page 134, I find the best of testimony on this subject—in fact the best I ever saw. In the article by Mr. Doolittle, near the centre of that page, I find the following: "That the larval bee subsists wholly on this creamy food or chyme, I think no one will deny, and if from my observations I am correct, the largest element in this food is pollen. As the larva absorbs this food, the grosser part of the pollen forms itself into the yellow streak seen in all larvæ when taken out of the comb, but most plainly in the drone-larvæ, which streak is finally enclosed by the intestines of the newly hatched bee, and evacuated on its first flight." Here is evidence from one of our best experimenters, and it shows just where the undigested pollen goes to.

Again, on page 5, is another article by the same painstaking experimenter; and in the first column he says: "The intestines of the newly hatched bee are filled with pollen when it emerges from the cell; in fact, this pollen is easily seen with the naked eye, in the larvæ, before it is sealed over in the cell, and the first thing that the young bee desires to do on the first flight (which occurs, where all is favorable, when the young bee is about six days old), is to relieve the abdomen of this pollen mass, which accumulated when the bee was consuming food in the larval state." Here we again see what becomes of the pollen which the old bees use. Farther on in the same article we find what becomes of the young bees that were supplied with the undigested pollen fed in the larval state. If they had no opportunity for discharging it within a few days, the result was—diarrhea and death.

But here another thing comes in: Mr. Doolittle's breeding or old bees and those that were reared died. Now, do we not all know that bees often breed in winter, and have no chance for a cleansing flight, and come out in the spring clean, bright and strong, and in the very best condition? What makes the difference? I wish that we had a small army of such experimenters as Messrs. Doolittle, Heddon, and Prof. Cook. I like to see them cross swords and then finally find out that they are fighting on the same side.

I do not call to mind a single case that has been brought forward to confute the pollen theory, but that can be accounted for on that theory. In Prof. Hasbrouck's essay, read at the International Congress, and found on page 155, he says: "Whenever anything new and useful is discovered, there are always those who, without any consideration, are ready with an 'I don't believe it.' Sometimes they attempt to verify conclusions, or to follow pro-

cesses, with a disposition to be a little better pleased to fail than to succeed, so that they can demonstrate their foresight, and have the satisfaction of saying, 'I told you so,' 'all a fraud," 'another humbug!'"

Why not change the programme for awhile and not tell of so many instances where bees winter well with pollen in the hive, but let us have the cases where they do not winter well with no pollen and with plenty of good honey or sugar syrup? If any one is anxious to prove that the "theory" is not true, give us the evidence of those that have tried it and failed. When a writer says he does not believe in the theory, let him add that it is not scientific, and so attempt, and if possible overthrow the statements of such scientists as Mr. Cheshire and Prof. Cook, and that he has thoroughly and honestly tried it and failed.

Wagon Works, Ohio.

For the American Bee Journal.

Hive Door-Yards—Sections.

B. F. LITTLE, (80—125).

Mr. J. A. Pearce, on page 169, requests an expression as to hive door-yards. I began by using sawdust and chips; I also tried sand, but I do not like either. My yard now is run strictly on the lawn plan, with which I am delighted. No doubt the question will be asked, "How can a lawn mower be run so as to mow close to and under the hives? I use a hive with a tight bottom, and resting on legs about 2 inches long, and the hives stand in rows. In the summer season I mow the yard about three times in two weeks. I have from ¼ to ⅜ of an acre which I mow by beginning on one side of the yard, mow up to the row of hives, front or rear, as the case may be; stretch a line, and have a two-wheeled truck, similar to a depot or mill truck, with two iron arms run out in front, and so arranged as to slip under the rear of the hives, and move it backward or forward, as the case may be, to the line.

If the grass shows signs of dying where the hives have been standing, move them to one side a little also. By moving the whole row, the bees are not inconvenienced in the least. Keep the yard mowed so close that in swarming time a queen can be seen anywhere. No bugs, toads or vermin will find a place in which to hide. I can mow my yard and move 100 colonies in 3 hours.

I would like to ask Dr. C. C. Miller, in reference to his essay, read at the International Congress, about experiments in different widths of sections. He says: "Scant 2 inches in width, used with separators, averaged," etc. He used four other different widths without separators with different results. The Doctor did not say whether he used a Heddon case or wide frames. The point I wish to know is, will the narrow sections in wide frames, say 2 inches, produce the effect which he spoke of, or will the frames have to be narrow in proportion to the sections?

Some of the leading apiarists recommend the "tiering-up" plan for extracted honey for quality, etc., taking off the honey at the end of the season. Do they not experience difficulty with robber bees, when they do take off the honey?

I wintered my bees in a cellar. The winter was terribly cold, and consequently some frost got in around the cellar wall. The lowest that I saw the mercury in the middle of the cellar, was 32° above zero; it is not higher now than 39°. My bees have been in the cellar for 4 months to-day (April 1), and I will not be likely to get them out for a week or ten days yet. They seem to be in fair condition.

Brush Creek, ♂ Iowa.

For the American Bee Journal.

Shipping-Cases, Fronting Hives, etc.

DR. W. G. PHELPS.

The length of my previous article on page 119, precluded the possibility of elaborating the plan proposed (if it needed such) of utilizing the surplus receptacle as a shipping-case. It may seem to some that in shipping honey in such a case they might be parting with a fixture of the apiary. I have experienced no such trouble. With the exception of one case, mine were all returned to me by the firm purchasing my honey, as previously agreed upon. Peradventure, they may be retained, even with our name and address stenciled upon them, what of it? Do they cost any more than the cases generally used to ship comb honey in? Like the berry and peach chest used so much in this fruit-growing country, the larger per cent. will be returned if so stipulated when sales are made.

To secure comb honey with the least possible amount of propolis attached to the sections, I have found a slat surplus-case indispensable in this State; viz: A slat to protect the bottom of the sections. In using a section 1⅛ inches wide, I use a slat of the same width let in at the bottom of the case. Some bee-keepers may differ from me, but "as for me and my house," I must say that we do not enjoy scraping propolis from the edges of the sections at the risk of breaking the delicate combs. I prefer to let my commission man, or the retailer do that, and I believe that at the present price of comb honey, they can afford to do it better than I; hence my idea in shipping it pretty much as our tiny employes put it up.

I want to inquire why the broad staple used in construction of barbed wire-fence, or one similar in shape, cannot be utilized to make our brood-frames reversible? By simply boring two holes in the ends of the top and bottom bars, for the insertion of the same, and lightly tapping the staple to its place, what better support do we need? When reversing, place the two staples in what was previously the bottom-bar. Instead of entrance-blocks to regulate the admission to the hive (and also ofttimes to be getting misplaced), I find strips of folded tin passing behind narrow retainers of the same metal properly tacked to the hive, the best possible entrance regulators.

Permit me to close this article by recording a hearty endorsement of Rev. M. Mahin's remarks on page 26. I have been just perverse enough to place the entrance of each hive due north for the last three years, and I highly recommend the plan for both summer and winter—in the summer for just the reason which Dr. Mahin gives; in the winter, for the most excellent reason that the bees are not tempted abroad by every strong ray of sunshine, and thus often to perish in vain attempts to regain the hive. With the proper tilt forward that every hive should have in winter, I never realize the slightest trouble with ice forming at the entrance.

Galena, ♂ Md.

For the American Bee Journal.

The Reversible Frame.

HOWARD U. ACKERMAN.

That the reversible frame is an improvement upon the old style of hanging or Langstroth frame, there can no longer be a shadow of doubt. That it has come to stay, is, I think, an accomplished fact. As to which style is the best, each bee-keeper will, as in all other cases of hives, smokers, extractors, and other apiarian fixtures, decide for himself. For myself I must say that I am better pleased with the frame described by Mr. Heddon, on page 8, than with any others yet brought to my notice. It seems to be simplicity itself, and, taken altogether, it is a very valuable arrangement.

It has been suggested that a standing frame is the simplest plan for reversible frames, but somehow I could never look upon it as such. It seems too much like retrogression. This may only be a prejudice upon my part, however, for I understand that several of our most prominent bee-keepers are very successful with a standing frame. Perhaps the reversing facilities afforded by the standing frame are the mitigating circumstances connected with its use. If this is the case, how much more valuable should the reversible hanging frame prove to the average bee-keeper. A whole season or two might pass by and the bee-keeper never need to reverse his frames, and, indeed, at certain times it might be a detriment to his colonies and his honey crop to do so; in such a case, or such a season, he must exercise his judgment as he does in all other things. The simplest fact that the frames *can* be reversed need not necessarily prove they *must* be reversed; and because the bee-keeper goes to a little extra expense to place reversible frames in all his hives, and finds at the end of the season that they have not been of any particular advantage to him for that season, he need not bemoan his stupidity; for, like the person who visited a mining camp upon the frontier and asked a characteristic individual of the locality, "if there really was any necessity of a man making a walking arsenal of himself in that camp," the reply was,

"Stranger, you might go about these diggings for a year and never see the need of a shooting-iron, but, stranger, if you ever did need one, you would need it awful bad." The same is true of reversible frames; you may not need them for a whole season, but when you do need them they are very convenient.

North Manchester, ♂ Ind.

For the American Bee Journal

Apiculture as a Business, etc.

E. J. SMITH.

I do not agree with those who advise making bee-keeping a specialty. If a specialist bee-keeper allows his bees to swarm, he will soon have a large number of colonies which he must locate in different parts of the country, and in doing so he must crowd out any with a few colonies; so there is no use for those with no experience, such as farmers, etc., to try to make a little money out of bees to help them along. Out of 25 bee-keepers here who keep 10 or more colonies, only 4 make it a specialty. Bee-keeping has been a great help to farmers. One who rented a farm for $200 a year, was able to pay the rent from the receipts of his apiary, and thus was able to save something each year with but little extra help. I have but 65 acres of cleared land, and I could save but little in good seasons, but now I hire a man to do the work on the farm, and I attend to the bees, and by so doing I have made a success of it.

We must endeavor to produce our honey at the lowest possible cost, so as to compete with the California honey which overstocked our best markets in the East last year; or we will have to sell our honey so low that it will not pay the cost of production.

I would say to any who are just starting in the business, or who intend to do so, if you have patience, pluck and perseverance, and like the business better than any other; if you like to work hard both early and late; and if you have a good locality, you will succeed. All the talk about bee-keeping being such an easy business for sick folks and women, is all wrong, and is liable to mislead many.

Although reversible frames may prove a success for some sections of the West, I do not believe that they will ever be of practical use in the East, for the following reasons:

1. As we have no fall crop of honey here, except in a very few localities, we should have to feed to bees all their winter stores, were we to get all the frames so full of brood that the bees would be compelled to put all their best honey in the sections; and were we to have a drouth at the close of basswood bloom, as we had the past season, we should have to feed them in August when it is so hot that the bees will rob if they have the least chance to do so.

2. In looking for queens, and in other manipulations necessary for the handling of all the frames, there would be great danger of killing the queen and a large number of workers, by cutting them in two when reversing the frames. It would be far better to have queens prolific enough to keep the frames full of brood and not have to be to the trouble of reversing them, for I do not believe that pollen is the only cause of bee-diarrhea, as there was a lot of it in nearly all my hives during the past winter, and I am not nearly so much afraid of loss in the winter as in the spring. It would be no advantage to me to have the combs fastened at the bottom, except in extracting, and then I think that it would be a disadvantage to the bees.

Addison, ☉ Vt.

SELECTIONS FROM OUR LETTER-BOX

Report, from W. D. Markham, Hart, ☉ Mich., on April 13, 1885:

My 80 colonies of bees have been in the cellar 5 months to-day, and they appear to be in as good condition as when I put them there. There are no signs of diarrhea among them.

No Loss in Wintering.—D. F. Park, Athens, ♂ Pa., on April 10, 1885, writes:

About April 1 we had a warm day which brought the bees out finely. I find that my apiary of 60 colonies is all right, but they are very late in starting brood-rearing. I have made many inquiries of bee-keepers here, and I find the losses very small. Two of my neighbors, with 60 colonies each, report a loss of but one in both apiaries. All have been wintered on summer stands, and a part of them with only outside packing, natural stores, and plenty of pollen. I think that this location is very favorable, as it is on a narrow strip of land between two rivers, which flow in parallel lines about 50 rods apart, while a mountain shuts off the west wind, so that it rarely gets 14° below zero. We find the rivers a great detriment in summer, as great numbers of bees fall into the water when coming home laden, especially at nightfall, when a chill seems to arise from the water, which affects them when flying low.

Transferring Bees, etc.—Chas. Harrold, Hamburg, ♀ Iowa, on April 6, 1885, says:

I have been transferring bees the past winter and this spring, and experimenting some in that line. I have now found a plan that just suits me. I have transferred bees by placing a new hive beneath the box-hive during a honey-flow, and also by removing the top from the box-hive, and placing two top-stories over the part remaining, one story filled with frames of honey, and the other with thin quilt and chaff packing. I put them into the cellar, and I found the bees up to the quilt about the middle of the winter; I removed the frames, bees and brood to the lower story on Feb. 1, but I did not like this plan, on account of the troublesome way of packing for winter; so, by experimenting with resin and beeswax, I found that I could make a preparation by using resin and beeswax, half and half, that was just the thing I wanted. I now remove the box-hive to a warm and well-prepared room—place the empty hive and frames on the old stand, and being prepared with the necessary tools for tearing the box-hive to pieces, and a table or bench, and a long and flaring pan with the preparation, and knives for cutting the combs, I am ready for operation. I cut the combs out, immerse their edges, which I wish to stick to the frames, in the preparation, and lay the frames on the table, press the combs up against the top-bars, let them lay in this position till they become cool, and then hang them in the empty hive. The hive that is placed on the stand catches the bees that take wing. Shake the remaining ones into the hive that contains the brood, and place them on the old stand. This gives me the best results of anything that I have ever tried, I no longer dread the job of transferring bees. My bees are doing well now. They are hard at work on the maple and elm, bringing in pollen and honey. About 75 per cent. of all the bees in this section perished during the past severe winter. I have lost several queens this spring, but I do not know the cause. I found them dead in front of a neighboring hive.

Wintering Bees.—A. L. Edwards, (110—110), Skaneateles, ☉ N. Y., on April 9, 1885, writes as follows:

I have just read the letter of Rev. J. Kearns, detailing the success in wintering bees, and I think that he has found the right way. I have wintered my bees in the same manner for 6 years, and I have not lost one colony in my double-walled chaff-hives on the summer stands, save from the loss of queens remaining undiscovered too long, thereby having to double up the queenless colonies with others. So far, this season, I have not lost a colony from any cause whatever; and I believe if bee-keepers would adopt the large chaff-hives made to contain 2 colonies, with 5 or 6 inches of dry sawdust packing around them, and then see that all other known conditions are complied with, such as good stores, good queens, plenty of bees, and ventilation over the packing, there would be fewer reports of such wholesale slaughter of the bees in wintering. From my experience, I think that it is usually the bee-keeper's own fault if the bees perish in winter.

Good Success for a Boy.—Bertie W. Peck, Richmond Centre, ♂ Ohio, on April 8, 1885, writes as follows:

I began the season of 1884 with 14 colonies, increased them to 24, and obtained 1,000 pounds of honey, mostly extracted. The past winter has been the worst one on bees that I have ever experienced, the loss of bees being greater than during the winter of 1880-81. I now have 15 colonies left, and the most of them are in good condition. I began keeping bees when I was 16 years old (I am now 21), and I think that I have had good success for a boy; of course the BEE JOURNAL has been a great help to me.

Still Cold.—G. M. Doolittle, Borodino, ☉ N. Y., on April 15, 1885, writes thus concerning the present unfavorable weather:

So far this year my bees have not had a flight, on account of the still continued cold weather. This is the latest that I have ever known bees on the summer stands to be kept without a flight. Those whose bees have had several flights, must see that bees in this locality have something to contend with besides pollen. I have lost 7 colonies out of 40, on summer stands, and must lose more if it does not warm up soon.

Bees have Wintered Well.—C. C. Gentry, Miami, ⊙ Mo., on April 10, 1885, writes thus:

I have been fairly successful with my bees during the past year. On Nov. 12, 1884, I put 63 colonies into a cellar which was dug in a sand-bank. They had plenty of honey and pollen for winter stores. I left them in the cellar for 135 days, and then put them out, when they had a good flight, and seemed to be in splendid condition. I saw no signs of diarrhea, and I do not think that they had hibernated. I am satisfied with cellar wintering. The hives should be put 20 inches from the cellar bottom. The temperature in the cellar ranged from 35° to 40° above zero. I have Albinos, Italians and blacks, but the Albinos are ahead this spring. Last season I worked 45 colonies for extracted honey, and I obtained 3,000 pounds. Some of my neighbors made failures. I have moved my bees from Carroll county to Saline county. Extracted white clover honey sells for 8 1-3 cents per pound here; comb honey, 12½ cents.

Report, from B. D. Scott, Ovid Centre, ⊙ N. Y., on April 9, 1885:

My bees have wintered well, and are in good condition. I lost but 5 colonies, 3 by disease, and 2 by starvation. They were confined for 140 days in the cellar. I put in 43 colonies last fall. The weather is very cold now, ice having formed 1½ inches thick, last night. The bee-keepers who wintered their bees on the summer stands have lost most of their colonies, and some have lost all.

Bee-Diarrhea.—13—Wm. Robson, (24—20), Rolla, ⊙ Mo., on April 9, 1885, writes:

The worst form of diarrhea presented itself among my bees during a flight about Feb. 26. There were 14 colonies in single-walled hives. I was much alarmed about it, as they crawled out on the outside of the hives and spotted them badly, and the snow for 100 feet around the hives was covered with the excrement. This was not the case with those bees which were wintered in double-walled hives; their appearance was lively and dry, and at this time, as they come flying home laden with pollen, it is easy to discern the strongest colonies. They were all wintered on the summer stands. On account of a snow-storm which continued for 3 hours to-day, the bees did not work outside.

Scarcely any Loss.—Fayette Lee, Cokato, ⊙ Minn., on April 2, 1885, writes thus:

My bees have been in the cellar for 5 months, and out of 80 colonies only 2 are dead. Some colonies had brood in three combs, and some are so strong that they fill every space between the combs. They have consumed scarcely any honey. I have rented 33 colonies, so I now have 111 in all. I prefer the Syrians.

Wintering Bees in a Damp Cellar.—W. M. Chapel, Kingston, ⊙ Wis., on April 2, 1885, writes:

Last fall I obtained 13 colonies of black bees, and on Nov. 5 and 22 I put them into the following described bee-cellar: It is 14 feet long, 6 wide, and 4 high—2 feet below the ground and 2 above. The soil is a red clay on low ground. The walls were clay below the ground, and loose boards above, banked up on the outside with earth. It contained no floor. It was covered first with a layer of marsh hay, then that with earth, and then the whole was covered with corn-stalks. The roof was boarded before any material was put on. The ground was very damp all winter, and all the colonies were more or less moldy. About midwinter I lost one colony by starvation, the dead bees of which I threw on the cellar bottom. In March another colony succumbed to the same cause, and the dead bees of this one were partly thrown on the floor, where they all molded. To my knowledge the mercury was never up to 40°. It ranged from 22° to 38° above zero, but it was most of the time at 30° to 34°. During one cold spell last January the mercury dropped from 32° to 22° within three hours. One chimney made of fence boards arose about 18 inches above the cellar top, is all the ventilation that was employed. I took my bees out of this musty place on April 1, before sunrise, with the mercury at 29°, outside. I placed them upon dry ground in the sun, with a strong east wind blowing, and after a four hours' flight, I had 11 strong colonies which are now cleaned up and in good condition. My bees were in box-hives.

Reports on Ventilation.—James Heddon, Dowagiac, ♀ Mich., writes thus:

I would like to have all bee-keepers to give a report of the healthful wintering of bees, with the least ventilation. If all who have known bees to successfully pass the period of confinement without any change of air, or with almost none, will give me, by private correspondence, a detailed account of the conditions, etc., I will from it formulate an article on "ventilation," giving each reporter credit, and thus get at this important problem. Mr. Shirley says that his neighbor who tried to smother his bees (as referred to in my last article), kept the hives sealed for 48 hours.

Nearly all Dead.—W. S. Bair, Rollersville, ♂ Ohio, on April 6, 1885, reports as follows:

The past winter has been a terrible one on bees in this part of Ohio. About 97 per cent. of all the bees are dead, and the few that are left are weak and diseased. I have made quite extensive inquiries of the bee-men, and receive the same answer from all—"dead! dead!" We had in this county (Sandusky) about 1,000 colonies, and some of our largest apiaries are extinct. Extreme cold and honey-dew did the mischief alike to all, no matter whether they were in cellars, on the summer stands, packed or unpacked. I had 28 colonies, and to-day I have 8 good ones, and 2 very weak ones. I had mine packed in buckwheat chaff.

Bees Under an Ice-House.—Philip Weck, East Camp, ♌ N. Y., on April 10, 1885, writes:

Ventilators in bee-repositories are a damage, as they cause too many changes in the temperature. I built an ice-house holding 50 tons of ice, on a side-hill, and under the ice I built a room 12 feet square and 7 feet high, for storing fruit; the side-walls and floor are cemented, and on the entrance in front I filled out with sawdust, and also a double door. In this room under the ice I put 7 colonies in November, 1883, and in the spring I found 3 of them dead, being after-swarms, and too weak to winter; 4 were alive. The temperature was 34° above zero. Last November I put 12 colonies into the room, with no ice in the ice-house, the floor being calked and air-tight overhead. Upon examining them in December, I found bees lying behind the hives cut through the middle, and I suspected mice. So I set a trap and caught three. They must have gotten into the hives before I took the bees in, as there was no possibility of them getting in through the cemented room. The weather being too cold to give them a flight, I examined all the hives to find the mice, and at the same time I cleaned all the bottom-boards which made them uneasy all winter. I have carried them all out, and they are doing well, even a colony in an observatory hive is doing well, and I feel perfectly satisfied to winter my bees hereafter in the same air-tight place without ventilation. The temperature was 32° above zero during the past winter. I also had 6 colonies outside on my bee-scale, one of which was dead, and both these and those under the ice-house had the diarrhea. I imagine that buckwheat honey caused it, as it was dark in color like the feces.

Reversible Frames.—Albert Neuman, Rolla, ⊙ Mo., describes his reversible frame as follows:

The inside measure of my hive is ¾ of an inch more than the outside measure of the frames. The rabbets of the hive I make of pieces of lath ¼ of an inch thick, and 1½ inches wide, by cutting notches on one side 1½ inch from centre to centre, running to a point ⅛ of an inch from the edge. Two of these I then nail to the bottom of the inside (front and back) of the hive, and one at the front 11 inches above the lower one (my frames are 12x12 inches), and into this last one I cut a ⅛-inch saw-kerf, ¼ of an inch deep in each notch, for receiving a piece of wire which is fastened one inch from each corner of the frame. I then slip the frames into the notches, which is easily done on account of the slopes of the notches, and the upper front wire slips into the saw-kerfs, which makes the frames perfectly steady. There is no trouble to handle the frames, as they are ¼ of an inch shorter than the inside of the hive, and the only place where they come in contact with the hive is at the two wires at the bottom and one on top. To reverse them, all one has to do is to take them out and put them back upside down.

Report, from A. M. Gander, (36—33), Adrian, ♀ Mich., on April 13, 1885:

The weather is still cool, and the spring is backward. I notice by my note-book, in which I note the weather and condition of bees, etc., that the first pollen was brought in last spring, on April 2, and in 1882, pollen was first brought in on March 1. There is great complaint of "spring dwindling" throughout this section, caused, as most practical bee-keepers know, by bad wintering. The past severe winter with poor stores (which consisted largely of honey-dew), was too much for the bees, and a great many died with the diarrhea. Fully two-thirds, and probably three-fourths, should the cold weather continue a spell longer, of the bees throughout this part of the country, will be dead; some bee-keepers have lost about all they had, while a few saved nearly all of their bees. Of my own, I have 33 left out of 36 colonies prepared last fall for winter. All of the 36 were alive on April 1, but 3 of them were so weakened by diarrhea, that they have since died, and I may lose 2 or 3 more yet, unless the weather soon changes for the better. My bees were packed on the summer stands with sawdust underneath, at the sides, and at the ends up 5 inches above the brood-chamber. I put sifted wheat-chaff on top of the frames to absorb the moisture. A space on top of the frames was left for the bees to pass from one frame to another. Their stores were mostly honey, gathered after the honey-dew was over with in this section, and sugar syrup fed in the fall to those that were light in stores.

Local Convention Directory.

1885. *Time and place of Meeting.*

Apr. 23, 24.—Western, at Independence, Mo.
C. M. Crandall, Sec., Independence, Mo.

April 24.—Portage County, at Ravenna, O.
L. G. Reed, Sec., Kent, O.

Apr. 25.—Union, at Earlham, Iowa.
M. E. Darby, Sec., Dexter, Iowa.

Apr. 28.—DesMoines County, at Burlington, Iowa.
Jno. Nau, Sec., Middleton, Iowa.

May 1.—Central Iowa, at Winterset, Iowa.
A. J. Adkinson, Sec., Winterset, Iowa.

May 2.—Central Illinois, at Jacksonville, Ill.
Wm. Camm, Sec., Murrayville, Ill.

May 4.—Linwood, Wis., at Rock Elm Centre, Wis.
B. Thomson, Sec., Waverly, Wis.

May 5.—Western Michigan, at Fremont, Mich.
F. S. Covey, Sec., Coopersville, Mich.

May 5.—W. New York and N. Pa., at Cuba, N. Y.
W. A. Shewman, Sec., Randolph, N. Y.

May 7.—Progressive, at Bushnell, Ills.
J. G. Norton, Sec., Macomb, Ills.

May, 7, 8.—Texas State, at McKinney, Tex.
W. R. Howard, Sec., Kingston, Tex.

May 12.—Cortland Union, at Cortland, N. Y.
W. H. Beach Sec., Cortland, N. Y.

May 19.—N. W. Ills., and S. W. Wis., at Davis, Ills.
Jonathan Stewart, Sec., Rock City, Ill.

May 28.—Mahoning Valley, at Newton Falls, O.
E. W. Turner, Sec., Newton Falls, O.

May 28.—N. Mich. Picnic, near McBride, Mich.
F. A. Palmer, Sec., McBride, Mich.

May 29.—Haldimand, Ont., at Nelles' Corners, Ont.
E. C. Campbell, Sec.

June 19.—Willamette Valley, at La Fayette, Oreg.
E. J. Hadley, Sec.

Dec. 8–10.—Michigan State, at Detroit, Mich.
H. D. Cutting, Sec., Clinton, Mich.

☞ In order to have this table complete, Secretaries are requested to forward full particulars of time and place of future meetings.—Ed.

Convention Notices.

☞ The Bee-Keepers of Western Michigan will hold their spring meeting on May 5, 1885, at Fremont, Mich. All are invited to attend. F. S. Covey, Sec.

☞ The second annual meeting of the Des Moines County (Iowa) Bee-Keepers' Association, will be held at the Court House in Burlington, Iowa, on April 28, 1885, at 10 a. m. All interested are cordially invited to attend and make the meeting as profitable as possible. All implements of the apiary sent to the Secretary will be exhibited at the meeting, and will be disposed of or returned, as the owner directs. John Nau, Sec.

☞ The Willamette Valley Bee-Keepers' Association will hold its second meeting at La Fayette, Oregon, on the third Tuesday in June, 1885. All who are interested are invited to attend. E. J. Hadley, Sec.

☞ The Central Illinois Bee-Keepers' Association will meet at Jacksonville, Ill., at 10 a. m., on Saturday, May 2, 1885.
Wm. Camm, Sec.

☞ The spring meeting of the Cortland Union Bee-Keepers' Association will be held in Cortland, N. Y., on May 12, 1885.
W. H. Beach, Sec.

☞ The Mahoning Valley Bee-Keepers' Association, will hold its next meeting at Newton Falls, Ohio, on Thursday, May 28, 1885. E. W. Turner, Sec.

☞ The next meeting of the Union Bee-Keepers' Association of Western Iowa, will be held on April 25, 1885, at Earlham, Iowa.
M. E. Darby, Sec.

☞ The bee-keepers of Portage County and vicinity will meet at Ravenna, Ohio, on April 24, 1885, for permanent orginization. Let every bee-keeper be present.
L. G. Reed, Sec.

☞ The second annual meeting of the Western N. Y. and Northern Pa. Bee-Keepers' Association will be held at Cuba, N. Y., on Tuesday, May 5, 1885.
W. A. Shewman, Sec.

Special Notices.

☞ We want one number each of the Bee Journal of August, 1866—February, 1867. Any one having them to spare will please send a Postal Card. We will pay 50 cents for one copy of each of the two numbers.

☞ The Farmer's Account Book contains 166 pages, printed on writing paper, ruled and bound, and the price is $3.00. We will club it and the Weekly Bee Journal for a year for $4.00. If you have already sent us $2.00 for the Weekly Bee Journal for a year, we will send the Book for another $2,00, making $4.00 in all. If you want it sent by mail, add 20 cents for postage.

☞ We want one number of the Weekly for 1884—May 28. Will any one who does not bind them, write a Postal Card saying what they will take for it? Do not send it until you hear from us, that we are not already supplied.

☞ **Preserve your papers** for reference If you have not got a Binder we will mail you one for 75 cents, or you can have one **free** if you will send us 3 new yearly subscriptions for the Bee Journal.

☞ To create Honey Markets in every village, town and city, wide-awake honey producers should get the Leaflets "Why Eat Honey" (only 50 cents per 100), or else the pamphlets on "Honey as Food and Medicine," and scatter them plentifully, and the result will be a DEMAND for all of their crops at remunerative prices. "Honey as Food and Medicine" are sold at the following prices:

Single copy, 5 cts.; per doz., 40 cts.; per hundred, $2.50. Five hundred will be sent postpaid for $10.00; or 1,000 for $15,00. On orders of 100 or more, we will print, if desired, on the cover-page, "Presented by," etc., (giving the name and address of the bee-keeper who scatters them).

To give away a copy of "Honey as Food and Medicine" to every one who buys a package of honey, will sell almost any quantity of it.

Advertisements.